IN THE CLAIMS:

1. (Canceled)

2. (New) A radiation source comprising:

a first electrode having an aperture substantially centered around a central axis of said radiation source for passing electromagnetic radiation from said radiation source; and

a second electrode spaced apart from said first electrode to form a gap therebetween, said gap defining a discharge region, said gap being supplied with a working vapor,

wherein one of said first electrode and said second electrode includes a hollow cavity in communication with said discharge region through an aperture that has a substantially annular configuration around the central axis of said radiation source, said hollow cavity is supplied with a driver gas.

3. (New) A radiation source according to claim 2, wherein said first electrode is an anode and said second electrode is a cathode.

4. (New) A radiation source according to claim 2, wherein said first electrode is a cathode and said second electrode is an anode.

5. (New) A radiation source according to claim 2, wherein said cavity has a substantially annular configuration around the central axis of the radiation source.

6. (New) A radiation source according to claim 2, wherein said first electrode and said second electrode are connected to different electrical potentials such that a plasma discharge is initiated in said driver gas inside said hollow cavity, followed by a compression of the plasma of the driver gas towards said central axis of said radiation source in which said plasma of the driver gas encounters the working vapor to create a plasma in the working vapor, the plasma in the working vapor emitting said electromagnetic radiation.

7. (New) A radiation source according to claim 2, wherein said driver gas comprises at least one selected from the group comprising helium, neon, argon and hydrogen.

8. (New) A radiation source according to claim 2, further comprising:

a shutter disposed in the vicinity the aperture of the first electrode,

wherein said shutter is adapted to substantially block particles formed in said discharge region.

9. (New) A radiation source according to claim 8, wherein said shutter includes a flywheel.

10. (New) A radiation source according to claim 8, wherein said shutter is adapted to open the aperture of the first electrode to let radiation pass through and to close the aperture of the first electrode to substantially block said particles.

11. (New) A radiation source according to claim 2, wherein said working vapor is supplied in a region proximate said central axis of said gap between said first electrode and said second electrode.

12. (New) A radiation source according to claim 11, wherein said working vapor is supplied along said central axis.

13. (New) A radiation source according to claim 2, wherein said working vapor comprises xenon.

14. (New) A radiation source according to claim 2, wherein said working vapor comprises at least one selected from the group comprising lithium vapor and tin vapor.

15. (New) A radiation source according to claim 14, further comprising:

a reservoir adapted to contain a material comprising at least one of lithium and tin;

a heater arranged to heat at least a portion of said reservoir so as to create a vapor from said material; and

a fluid passageway in communication with said reservoir to allow said vapor to enter said gap between said first electrode and said second electrode.

16. (New) A radiation source according to claim 14, further comprising:

a reservoir adapted to contain a material comprising at least one of lithium and tin;

a first heater arranged to heat at least a portion of said reservoir so as to create a liquid from said material; and

a fluid passageway in communication with said reservoir, said liquid created from said material is drawn inside said fluid passageway by capillary action.

17. (New) A radiation source according to claim 16, further comprising:

a second heater in contact with a portion of said fluid passageway, wherein said second heater is arranged to heat at least a portion of said liquid drawn inside said fluid passageway so as to create a vapor from said liquid and to allow said vapor to enter said gap between said first electrode and said second electrode by capillary action.

18. (New) A radiation source according to claim 16, wherein said fluid passageway includes a tubular section.

19. (New) A radiation source according to claim 16, wherein said fluid passageway includes a porous rod.

20. (New) A radiation source according to claim 19, wherein said porous rod is terminated at one of its ends with a chamber, said chamber being adapted to collect at least one of the lithium vapor and the tin vapor.

21. (New) A radiation source according to claim 20, wherein said chamber includes an opening through which at least one of said lithium vapor and tin vapor escapes to said gap between said first electrode and said second electrode.

22. (New) A radiation source according to claim 2, further comprising:

an electrical insulator disposed between said first electrode and said second electrode; and

a canal leading to a said gap between said first electrode and said second electrode,

wherein said electrical insulator is disposed inside said canal away from said working vapor.

23. (New) A radiation source according to claim 22,

wherein said canal defines a path along which said working vapor condenses to form a liquid material.

24. (New) A radiation source according to claim 23, wherein a temperature along said path is less than or equal to 300°C.

25. (New) A radiation source according to claim 22, wherein said canal is inclined relative to a wall of a reservoir in said radiation source such that the liquid material is collected by gravity in said reservoir.

26. (New) A radiation source according to claim 22, wherein said canal comprises a curved portion.

27. (New) A radiation source according to claim 2, further comprising a trigger electrode, wherein at least a portion of said electrode is disposed within said hollow cavity.

28. (New) A radiation source according to claim 27, further comprising an electrical circuit constructed and arranged to apply a voltage pulse to said trigger electrode.

29. (New) A radiation source according to claim 28, wherein said electrical circuit comprises a transformer having primary and secondary windings, said primary windings being in electrical communication with a voltage source to supply said voltage pulse and said secondary windings being in electrical communication with one of said first electrode and second electrode and said trigger electrode.

30. (New) A radiation source according to claim 2, wherein said radiation source is adapted to generate a beam of radiation having a wavelength between about 5 nm and about 20 nm.

31. (New) A lithographic projection apparatus comprising:

a radiation system adapted to provide a projection beam of radiation;

a support structure adapted to support a patterning structure to pattern the projection beam according to a desired pattern;

a substrate table adapted to hold a substrate; and

a projection system disposed between said support structure and said substrate table, said projection system being configured to project the patterned beam onto a target portion of the substrate,

wherein said radiation system comprises:

a first electrode having an aperture centered around a central axis of said radiation source; and

a second electrode spaced apart from said first electrode to form a gap therebetween, said gap defining a discharge region, said gap being supplied with a working vapor,

wherein one of said first electrode and said second electrode includes a hollow cavity in communication with said discharge region through an aperture that has a substantially annular configuration around the central axis of said radiation source, said hollow cavity is supplied with a driver gas.

32. (New) A radiation source comprising:

a plasma chamber adapted to house a plasma, said plasma chamber having an aperture through which a radiation emitted by said plasma passes;

a shutter disposed in a vicinity of said aperture,

wherein said shutter is adapted to substantially block particles formed in said plasma.

33. (New) A radiation source according to claim 32,

wherein said shutter includes a flywheel.

34. (New) A radiation source according to claim 32,

wherein said shutter is adapted to open the aperture to let said radiation emitted by said plasma to pass through and to close the aperture to substantially block said particles formed in said plasma.

35. (New) A radiation source according to claim 32,

wherein a first wall of said chamber forms a first electrode and a second wall of said chamber forms a second electrode.

36. (New) A radiation source comprising:

a source of material including at least one of lithium and tin;

an electrode disposed in the vicinity of said source,

wherein said electrode is configured to induce formation of a plasma in said at least one of the lithium and the tin, said plasma emitting a radiation having a wavelength in extreme ultraviolet range of wavelengths.

37. (New) A radiation source according to claim 36, wherein said extreme range of wavelengths is between about 5 nm and about 20 nm.

38. (New) A radiation source according to claim 36, further comprising:

a heater arranged to heat at least a portion of said source of material so as to create a vapor from said material; and

a fluid passageway in communication with said source of material to allow said vapor from said material to enter a region in said radiation source in which said plasma takes place.

39. (New) A radiation source according to claim 38, wherein said fluid passageway includes a porous rod.

40. (New) A radiation source according to claim 39, wherein said porous rod is terminated at one of its ends with a chamber, said chamber being adapted to collect a vapor from said material.

41. (New) A radiation source according to claim 40, wherein said chamber includes an opening through which said vapor from said material escapes to said region in said radiation source in which said plasma takes place.